

## ANNUAL FOREST INSECT CONTROL REPORT

Recreational development in the Sequoia-Kings Canyon National Parks is confined largely within altitudinal ranges from 4000 to 7500 feet. This same area contains the majority of the Sugar pine, Western Yellow pine and Jeffery pine forest types. It is evident, therefore, that the protection of these pines from insect attack is vitally important from a recreational and an aesthetic standpoint, as well as forest sanitation.

Various portions of these parks present definite and, in some cases, individual control problems which can best be solved by establishment of separate control units. The following narrative report, therefore, will deal with the 1948 control program in this manner.

General: A Fall insect survey was made in 1947 by the Park Forester in company with Mr. George Streuble of the Bureau of Entomology. Few infested trees were found, and it was assumed to be indicative of a low endemic insect population. Periodic spotting trips were made throughout the winter months which enabled the location of a number of pines infested with Dendroctonus monticolae and brevicornis. As all roads were blocked by snow, spotting was largely centralized upon the few accessible areas. A sharp increase in the number of fading trees was noted with the arrival of Spring weather. It was at this time effective spotting could be done from trails, viewpoints and side roads. Especially good results were obtained by using compass bearings from two known viewpoints.

The entire project was carried out by a crew of three men, assisted by the Park Forester. The crew was placed in the field on March 1 and continued the work until completion. Periodic snowstorms forced short suspensions of work. All treatment was by peeling and burning the bark which contained the broods of beetles.

Cedar Grove Unit: The Cedar Grove Unit includes the floor of Kings River Canyon from the mouth of Grizzly Creek east to Bubbs Creek junction with its surrounding canyon walls. The Sheep Creek Drainage is carried almost to the park boundary because of its relative easy access. This unit totals approximately 6000 acres, with a good stand of Sugar and Western Yellow pine. Due to its topographical location, maintenance control is expected to be very effective in preventing excessive loss by bark beetles. However, control operations are hindered by lack of accessibility during the winter months. The State Highway is not opened to traffic until about May 1. Since burning must be done at a time of low fire hazard, the work crew was required to enter the area on snowshoes and toboggan. This was no particular hardship, but did curtail spotting prior to actual control operations.

The infestation here is confined largely to the Sheep Creek Drainage and the floor of the canyon in the immediate vicinity of the campgrounds. Loss has been extensive over past years, and has resulted in several clump kills as well as scattered trees. Insect control is especially important here due to the high use of a comparatively small acreage.



A total of 20 trees were cut and treated in this area. Eighteen were Western Yellow pine and two were Sugar pine. Sixteen of the Yellow pine contained active broods of Dendroctonus brevicornis. The other two, as well as the Sugar pine, contained Dendroctonus monticolae.

A careful spot of the unit was made in December 1948. A sharp reduction of summer killed trees was apparent. However, several broods of D. brevicornis were found, and control work is planned for the Spring of 1949. Insect population can be classed as endemic, with D. brevicornis much more numerous than D. monticolae. All control operations should be carried out while snow still is upon the ground, since forest fuels dry rapidly with the arrival of warm weather.

Grant Grove: This unit includes the Grant Grove and Redwood Mt. section, comprising a total of approximately 12,000 acres. This area is completely surrounded by lands under administration of the U. S. Forest Service and the State of California. Maintenance control is not being practiced by these agencies, and there is little doubt that broods of bark beetles migrate into the park from these forests. However, our control projects will materially reduce damage to the pines in this portion of the park.

Forty-nine pines were cut and treated for control of D. monticolae during the year of 1947. Five infested trees were treated in the Spring of 1948. Four Sugar pine contained broods of D. monticolae and one Yellow pine had been attacked by D. brevicornis.

Spotting during the Fall of 1948 revealed an increase in Summer kills over the previous summer. However, losses were still within normal expectations. A few broods of D. monticolae were located in the Grant Grove Area and quite a number are active in the Sugar Bowl Area of Redwood Mountain. Control operations are planned for this unit during the Spring of 1949. Conditions may be classed as endemic.

Giant Forest, Colony Hill and Marble Fork Basin: This area presents the greatest potential loss of the entire park. Approximately 25,000 acres contain some excellent stands of Sugar and Yellow pine. The Marble Fork Drainage has rough topography and is hard to work during winter months, due to snow.

Twenty-six trees were treated in the Spring of 1948. Seventeen were Sugar pine containing broods of D. monticolae and nine yellow pine contained D. brevicornis. No control work was done in 1947.

Spotting in December 1948 revealed that there had been a large beetle population in the Moro Creek burn during the summer of 1948. Many abandoned trees were found. Many small trees had been nearly stripped by birds in search of broods, and it is believed that many were completely destroyed. Eighteen trees containing broods of D. brevicornis were marked, and it is believed that at least that many more are present. Control work will be concentrated here during the Spring of 1949. The population of the burn may be classed as low epidemic, and that of the remainder of the unit as endemic.

The Simpson Meadow burn will be carefully studied as a possible breeding site for forest insects. Further devastation of the remaining forest cover by an insect epidemic would be disastrous.

Statistics For 1948 Insect Control

<u>No.</u> <u>Trees</u>	<u>Average</u> <u>D.B.H.</u>	<u>Sugar</u> <u>Pine</u>	<u>Yellow</u> <u>Pine</u>	<u>Estimated</u> <u>Volume</u>	<u>Cost For</u> <u>Tree</u>	<u>Total Cost</u> <u>of Project</u>
53	32.3	25	28	71.6M	\$28.30*	\$1500

\*Includes cost of spotting, truck rental, supplies and equipment.

Other Insects Involved: Other tree-killing insects were noted throughout the park. However, damage is minor with the exception of the Lodgepole needle miner (Recurvaria millerii) infestations on the Kern-Kaweah and Woods Creek. These are infestations of long establishment and no control is contemplated. Fir engraver beetles (Scolytus ventralis) were found in occasional white fir, accompanied by the Sierra fir borer (Tetropium abietis). Flathead borers (Melanophila gentilis and Melanophila californica) were numerous in the Mero Creek burn.

Copy of the Annual Forest Insect Control Report is attached for the Bureau of Entomology.

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Superintendent

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